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cancer— —H-bomb

Cancer among diseases is as the hydrogen bomb among weapons. Any possibility for protection against the H-bomb would be immediately developed and made universally available regardless of difficulties and cost. There is now a simple, practical and comparatively inexpensive protection against cancer, a protective measure to which the public and even many physicians remain indifferent. Its protection is far from complete but it is the best we've got. This protective procedure is the early detection of cancer in the apparently well individual.

The surgeon and the radiotherapist labor diligently on improving their techniques and proudly bring forth modest in-

creases in their five-year-survival rates; and vast sums are expended on research into the nature and cause of cancer in the long-range hope for its control. Yet, simply by its early recognition through periodic health examinations, a substantially larger measure of control over cancer could be achieved now, for many cancers are detectable in the curable stage.

Barring the possible discovery of a new and effective treatment or of the preventable cause of the malignant process, early detection will continue to yield the greatest dividends in cancer control. Immediate benefits would follow more general use of the periodic health examination.

Greater attention should be given to a study of the causes of indifference of the public and of foot-dragging of the physician, and to the educational methods for their correction. The family doctor and dentist are in strategic positions for promoting the periodic examination and for detecting cancer in its incipient stage.

It is incredible that the public and many physicians continue to ignore the practical possibilities of a fact that has been well known for at least nineteen centuries—that "only the beginnings of cancer permit of a cure" (Celsus, circa A.D. 178).

Cover—

City of Riverside, California, County Seat of Riverside County, whose Medical Society reports a successful pilot experiment of cancer detection in the physician's office (see page 123).

In the distant background is Mount Rubidoux, site of annual Easter Services.



NEWSLETTER

JULY, 1954

Lung Cancer Conference: In 1952, mindful of the alarming increase in lung cancer, and seeking to mobilize all possible forces to combat it, the American Cancer Society organized a National Committee on Lung Cancer. The Committee consists of representatives of professional specialty interests concerned with one or another aspect of lung cancer: surgery, radiodiagnosis, radiotherapy, cytology, pathology, health education, case-finding, and biostatistics.

Among the recommendations of this Committee was the organization of a Committee on Lung Cancer Research to review the evidence accumulated by basic investigative efforts and to co-ordinate, to what extent it is feasible and desirable, ongoing laboratory enterprise.

This recommendation was approved by the governing board of the American Cancer Society in November, 1953. Accordingly the following scientists were invited to assemble in Atlantic City, February 19 to 21, 1954, under the auspices of the American Cancer Society and under the Chairmanship of Dr. A. J. Vorwald of Saranac Lake: Howard B. Anderson of the National Cancer Institute, Anna M. Baetjer of Johns Hopkins University, R. Keith Cannan of the National Research Council, J. Engelbreth-Holm of Copenhagen, L. F. Fieser of Harvard University, Evarts A. Graham of Washington University, Harvey B. Haag of the Medical College of Virginia, J. R. Heller, Jr., of the National Cancer Institute, Francis F. Heyroth of the University of Cincinnati, W. C. Hueper of the National Cancer Institute, Paul Kotin of the University of Southern California, Herman Lisco of Argonne National Laboratories, Kenneth M. Lynch of the Medical College of South Carolina, Willard C. Machle of Washington, D. C., Ralph Meader of the National Cancer Institute, G. Burroughs Mider of the National Cancer Institute, George E. Moore of Roswell Park Memorial Hospital, Norman Nelson of New York University-Bellevue Medical Center, P. R. Peacock of Glasgow, Michael B. Shimkin of the National Cancer Institute, William E. Smith of New York University-Bellevue Medical Center, R. E. Waller of London, and E. L. Wynder of Memorial Center for Cancer & Allied Diseases. The following

guests attended the Conference: E. S. Ross of the Brotherhood of Railroad Trainmen, A. Wesley Horton of the University of Cincinnati, and Walter Stanley Hartroft of the University of Toronto.

Dr. Charles S. Cameron, Medical and Scientific Director and Vice President of the American Cancer Society presented the purposes of the conference as follows:

1. To review the evidence that is regarded by many as pointing to probable causes of the increase in lung cancer.
2. To review the laboratory investigative efforts, past and current, that have sought and are seeking to establish or deny the culpability of those alleged causes.
3. To consider the extent to which it may appear practical and desirable to enlarge and intensify such ongoing research efforts.
4. To consider the extent to which it may appear practical and profitable to co-ordinate laboratory research oriented to the causation of cancer of the lung.
5. And if such co-ordination does appear practical and profitable, to recommend how it may be achieved.

This Committee is in a position to create, indeed it could create itself, a kind of Office of Scientific Research and Development for lung cancer. Which is to ask "Has the time arrived, as it oftentimes does in the slow accumulation of facts born of diverse disciplines, when direction and integration can be made to solve the problem, which brings us here, sooner than it is likely to be solved otherwise?" Should you find the answer is in the affirmative, you may be assured that the agencies that have covenanted with the American people to control cancer as expeditiously as money and scientific ingenuity permit will provide the resources to get the job done.

I see in this group a source of wholly independent, disinterested opinion and advice, serving only the purpose of blueprinting a design for arriving at the truth in the shortest possible time. And for that reason your services, as a group, should be available to all agencies supporting and carrying on research in this area. Indeed your effectiveness, should you become more than an ad hoc committee, will be in proportion to your independence and your non-sectarian character.

We recognize and respect the tradition of scientists, in particular university scientists, to work independently. We also recognize the technological achieve-

(Continued after page 144)

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Keeping up

Primary Ureteral Tumors

One hundred and thirty cases of ureteral tumors found in the literature since 1943 are analyzed. Papillary carcinoma occurred in 42.4 per cent of the cases. The incidence of the tumors was most frequent in the fifth, sixth, and seventh decades, 80 per cent of the cases being found in this age group. Sixty-five per cent were found in men and 35 per cent in women. The associated symptoms seen at times were urgency, frequency, dysuria, long slender blood clots, nocturia, weight loss, anorexia, nausea and vomiting, and jaundice. The most appalling feature in the analysis was the length of time between the onset of symptoms and the diagnosis and treatment of the tumor, the average being 20.6 months. Nephro-ureterectomy with partial cystectomy, whenever possible, is the preferred method of treatment for malignant tumors. The infiltrative form of tumor proved more highly malignant than the papillary form. To improve the results in this condition, four suggestions are made: increased cancer consciousness of the public, increased consciousness for ureteral tumors by the urologist, better use of diagnostic implements, and more radical surgery whenever possible.

Senger, F. L., and Furey, C. A., Jr.: Primary ureteral tumors with a review of the literature since 1943. J. Urol. 69:243-258, Feb., 1953.

Hepatic Tumors

Aspiration biopsy through the intact abdominal wall will, in most instances, lead to a correct diagnosis of hepatic tu-

mor. However, the surgical status of the tumor can be determined only by means of laparotomy. Symptomatology of hepatic tumor is not particularly characteristic. Weakness, weight loss, anemia, pain, jaundice, and edema of the legs usually occur in the late stages of malignant tumors. Occasionally hemorrhage into the tumor or beneath the capsule of the liver will produce sharp, excruciating pain, radiating to the shoulder or back. Complete studies of liver function will preclude exploratory surgery in most cases of swollen tender liver of infectious hepatitis. Although primary neoplasms of the liver, whether benign or malignant, are relatively rare—about 0.017 per cent in the Memorial Hospital series—metastatic cancer of the liver is found in 30 to 50 per cent of all cases of carcinoma postmortem and often many years after removal of the original growth. If the tumor is confined to the left lobe and does not involve the major vessels or ducts, left hepatectomy can be carried out by carefully dissecting and ligating the left branch of the hepatic artery at the base of the hepatic fissure. Tumors involving the right lobe, without evidence of regional spread or distal spread, necessitate the more difficult right hepatectomy, for which the authors' technique is described. Recently, nitrogen mustard has been injected intra-arterially in an attempt to control radioresistant metastases and diffuse, inoperable, primary liver tumors. The dose is 0.6 mg. per Kg. of body weight injected into the hepatic artery at laparotomy or by catheterization of the celiac axis through the external carotid artery and aorta. However, thrombosis of the

...with Cancer



hepatic artery may occur. It is concluded that with primary carcinoma of the liver, exploratory laparotomy should be done in an attempt to save the occasional patient with a resectable tumor.

Pack, G. T., and Miller, T. R.: The treatment of hepatic tumors. New York State J. Med. 53:2205-2207, Oct. 1, 1953.

Gastric Cancer

Comparative studies of 707 cases of carcinoma of the stomach demonstrate the poor prognosis and emphasize lack of progress owing chiefly to the failure to diagnose gastric cancer early. Although the gastric cancer was diagnosed roentgenologically in more than 90 per cent of the patients in this series, in many the roentgenological examination took place at a stage when the condition was already too far advanced for cure. Although gastric malignant disease requires adequate radical surgery, attempts to prevent regional node metastasis by routine total gastrectomy are not consistent with the anatomical relationships and are not compatible with the best interests of the patient. Improved methods of examining the gastric mucosa are urgently needed. Cytological examination of gastric washings has proved of value only when the findings were positive. The prognosis of a patient with carcinoma of the stomach is equally poor in a large teaching hospital in New York City and of one in a general hospital in a city of 100,000 in Connecticut.

Abrahamson, R. H.: Gastric malignancy; a comparative study of the etiology, diagnosis, and therapy of 707 cases. Connecticut M. J. 17:658-663, Aug., 1953.

Primary Tumors of the Duodenum

Twenty-three primary tumors of the duodenum, eight benign and fifteen malignant, are presented. Twenty, eight benign and twelve malignant cases that were autopsied, represent an incidence of 0.08 per cent in 25,000 autopsies. Sixty-six per cent of the malignant tumors showed metastasis. Lymph-node involvement was described in six. Three adenocarcinomas were surgically resected. Two of these were infra-ampullary-localized lesions and had segmental resection of the duodenum with survival. Both cases, presented in detail, had end-to-end anastomosis beneath the superior mesenteric vessels. One patient is alive and well twelve months after operation. Twenty-five months after resection the other patient had a new carcinoma of the cecum with inoperable metastases.

Experience to date would indicate that segmental resection rather than radical pancreatoduodenectomy is preferable, since a comparable survival time seems to be obtained with lower mortality and morbidity.

Duodenal carcinoma seems to resemble that of the left colon in terms of rate of growth, percentage involvement of liver and distant metastatic sites, and survival time after palliative operations. Palliative procedures such as gastroenterostomy, duodenojejunostomy, and biliary decompression have been reported with an average survival time of twenty-one months.

Ebert, R. E.; Parkhurst, G. F.; Melendy, O. A., and Osborne, M. P.: Primary tumors of the duodenum. Surg., Gynec. & Obst. 97:135-139, Aug., 1953.



a glance . . .

one-minute abstracts
of the current literature
on cancer . . .

Follow-up of a Roentgen-Ray Chest Survey

During four and a half months ending February 1, 1950, chest roentgenograms of 536,012 persons were reviewed by a roentgenological board. Three hundred and ninety-eight patients were suspected of having lung tumor. Follow-up three years later classified these patients as follows:

| | |
|---|-----|
| Primary bronchogenic carcinoma, proved | 39 |
| Primary bronchogenic carcinoma, presumptive | 13 |
| Metastatic pulmonary tumors | 19 |
| Other type of cancer | 1 |
| Miscellaneous group | 275 |
| No follow-up report | 51 |

Of the thirty-nine proved primary cases, thirty-three were in men and six in women. Twenty-two were resected; five of these patients were alive and well three years after the original survey film. In the thirteen presumptive cases, diagnoses were made either on roentgenograms alone or in conjunction with highly suggestive clinical histories. Six of the thirteen patients are known to have died and been signed out as having cancer, one is alive, and the remaining six were not followed. One case of primary lymphosarcoma of the lung was found in a 37-year-

old woman. Among the diagnoses in the miscellaneous group were tuberculosis and other infections, and mediastinal, chest-wall, diaphragmatic, and vascular lesions.

From the case-finding standpoint thirty-nine cancers in 536,000 persons represent one case in 14,000; and from the salvage standpoint five three-year cures in the more than half a million persons represent less than one in 100,000 initially screened.

There was an average delay of fifty-six days between the initial survey film and establishment of final diagnosis. With further experience in follow-up procedure this period can be shortened. Of the thirty-nine positive cases, thirty-two (80 per cent) were in men. Case-finding productivity, therefore, could be materially increased by confining such screening surveys to men 50 years of age and older.

This study proves that the roentgen-ray chest survey is capable of disclosing some cases of early cancer that might not otherwise be detected. Even though its cost is prohibitive in the general population, it should be carried out as part of existing routine examinations, as in hospital admissions, physical examinations of business and industrial employees, and of members of the Armed Forces.

[Editor's Note: The yield of cancer of the lung in the Boston mass chest x-ray survey is indeed discouraging and the results of treating those found are dismal. Yet the following should be borne in mind in the evaluation of the survey method:

1. This was the first city-wide survey in Boston and it is reasonable to assume that it picked up a number of lung cancers of relatively long duration. With this backlog out of the way, would not additional surveys be more likely to disclose tumors developing since the first—and, if the subsequent surveys were conducted at intervals of, say, a year, would not the tumors found tend to be earlier and carry a better prognosis than those reported above?

2. All comers, regardless of age, were x-rayed. Most of them were less than the age of 60 when the peak incidence of bronchogenic cancer begins to be reached. Would not surveys restricted to persons (men?) more than 50, or 45, yield a much higher rate of lung cancer?

This is a plea not to blame the method yet—certainly not until a survey specially designed to find lung cancer has been carried out. The calculated yield under such circumstances is 1 in 1000 as compared to 1 in 14,000.]

McNulty, J. M.: *Clinical follow-up study of 398 patients suspected of having lung cancer discovered in the Boston chest x-ray survey. New England J. Med.* 250:14-17, Jan. 7, 1954.

Early Diagnosis of Prostatic Cancer

It is perhaps a sad reflection upon cancer-detection teachings that in a large metropolitan area, boasting two medical schools, in a series of more than 600 prostatectomies one can find but twelve cases of carcinoma of the prostate that were seen early enough for radical surgery. These statistics fit in with the generally accepted view that only 1 or 2 per cent of all prostatic-carcinoma cases are seen early enough for possible cure. This is particularly deplorable when one knows that the five-year-survival period after radical prostatectomy is at least 50 per cent. Since there are no early symptoms, it is obvious that only by educating physicians in general can one hope to find more

operable prostatic cancer. It is recommended that men more than 50 years of age should have periodic, routine, rectal palpation of the prostate. Any suspicious-seeming area, such as one of firmer consistency, should be biopsied to make an accurate diagnosis. A needle biopsy is of definite value if the limitations of the method are kept in mind. Generally, an elevation of the serum acid phosphatase is diagnostic of prostatic cancer but, if it is not elevated, it does not rule out prostatic carcinoma. Since castration and female hormones do not prolong life in palliative therapy, radical prostatectomy should be attempted on all cases of early carcinoma of the prostate if the age and general condition of the patient permit.

Melick, W. F., and Naryka, J. J.: *The diagnosis of early carcinoma of the prostate and its treatment by radical perineal prostatectomy. Missouri Med.* 50: 695-699, Sept., 1953.

Gross Urinary Hemorrhage

Hematuria, though frequently accepted without much concern as a diagnosis by patient and physician alike, is not a disease but a symptom. In most cases, the bleeding ceases spontaneously and is then forgotten until another recurrence. However, gross urinary hemorrhage should always be taken as evidence of a dangerous lesion until proved otherwise. Even the most serious urinary conditions may produce blood without pain. Of 1000 consecutive patients with gross urinary hemorrhage, 22 per cent had carcinoma in the urinary tract. About two thirds of the subjects were males. Ages varied from 5 to 94 years, the majority being 50 to 80 years. Cystoscopic examination is basic, and urethroscopic study, ureteral catheterization, and retrograde pyelograms may be required. Intravenous urograms; roentgenograms of kidney, ureter, and bladder; urethral smear; and blood examination are also used in diagnosis. Cystoscopic study and other office procedures will establish the diagnosis in about half; the rest usually need a complete hospital survey.

Lee, L. W., and Davis, E., Jr.: *Gross urinary hemorrhage: a symptom, not a disease. J.A.M.A.* 153: 782-784, Oct. 31, 1953.

The Public and Cancer Control

*George R. Dunlop, M.D., Clarence L. Scamman, M.D., Jane Jones,
and Herbert L. Lombard, M.D.*

This paper supports the thesis that the dissemination of cancer information is a valuable means for increasing knowledge of the disease that may lead to early diagnosis and prompt treatment.

In cancer control three types of educational activity should be considered: furnishing information (1) for propaganda purposes, (2) merely to create awareness, and (3) to motivate action if the need arises. The three types of educational effort require different methods of evaluation. Propaganda can usually be measured immediately. Here the effort is so closely connected with the results that failure to meet quotas or to attract interested individuals is apparent at once and suggests the need for improved techniques. It is not easy to evaluate techniques that merely create awareness of the subject, and it is even more difficult to evaluate methods of furnishing information that motivate action.

There are many studies demonstrating that the cancer situation is improving. The death records give pertinent information of this type. In the early part of the century the adjusted cancer death rates for both sexes were rising about 2 per cent per year in Massachusetts and in the U. S. Registration Area of 1900. Shortly before this country entered World War I, the increase among females lessened, somewhat more in Massachusetts than in the Registration Area. A change occurred in the male rate around 1926 for both Massachusetts and the Registration Area. From then on the annual percentage increase was only about one half its previous value. In the middle thirties, a downward trend was noted in Massachusetts among females, and a few years later a similar drop occurred in the Registration Area of 1900.¹

The increasing number of cures reported by surgeons is another example of

improvement in the cancer situation. Survival rates are also used in evaluation. In the four oldest State-aided cancer clinics, Worcester, Springfield, Lowell, and Lynn, there were 13 per cent ten-year survivals for patients admitted in the first year of the clinics and 26.5 per cent for those admitted fifteen years later. The increased percentage of cures or survivals, however, represents such factors as improved diagnosis, better surgery, more knowledge of cancer by the lay public, and probably other factors. Such data could not be used as a sole measure of any one of these items.

The extent of background knowledge of cancer in the general population and the sources of the medical information may be ascertained by surveys, somewhat similar to the Gallup Poll. Surveys repeated in the same community at a later period will determine whether there has been improvement in cancer knowledge.

Evaluation of educational activities in Massachusetts has been carried on by obtaining information as to the extent of cancer knowledge, and the media through which the information was acquired, in sample populations from a number of communities in the State.

This paper deals primarily with a comparison of the community knowledge of cancer in the years 1949 and 1953 in Waltham, Massachusetts. The city contains diversified industries and excellent medical facilities. The population is approaching 50,000, which includes a large number of skilled workers. Prior to 1949 no long-term intensive educational campaign in cancer control had been conducted.

In 1949 the Division of Cancer and

From the American Cancer Society, Massachusetts Division, Inc., and the Division of Cancer and Other Chronic Diseases, Massachusetts Department of Public Health, Boston, Massachusetts.

TABLE 1

Comparison of Results of Two Evaluative Surveys in Waltham, Massachusetts, and the Nation-wide Gallup Poll in Respect to Symptoms of Cancer

| % individuals unable to name any symptoms (signs) | 1949 | 1950 | 1953 |
|---|------|------|------|
| The Gallup poll | — | 46.0 | 46.0 |
| Waltham survey | 45.8 | — | 29.3 |

Other Chronic Diseases of the Massachusetts Department of Public Health conducted a public-knowledge survey in Waltham.² The data were used to ascertain the level of cancer knowledge in the city and to determine the relative value of the media used in cancer education.

The city was divided into sixty sections approximately equal in respect to population. In each of these sections a surveyor followed the same pattern in selecting her sample, and the information was obtained by interviewing one member of a family.

The surveyors were selected on the basis of their ability to meet the public and they were trained in this type of surveying. The information that was sought consisted of: identifying data; knowledge of contagion and curability, best methods of treatment, the seven danger signals of cancer, and knowledge of cancer-control agencies; and sources of information regarding cancer.

Between 1949 and 1953 the American Cancer Society, Massachusetts Division, Inc., with the assistance of the Waltham Cancer Education Committee, utilized diversified methods to increase cancer knowledge in the city. The Committee carried on its educational campaign on six fronts: newspapers, radio, organizations, industry, leaflets, and an information center.

The outstanding phase of the newspaper campaign was the publication of a weekly column devoted to cancer, written by a medical member of the local committee. The industries were furnished literature and exhibits. There was continuous appeal to clubs and other organ-

ized groups to utilize films and speakers. Contact was made by telephone or personal visit, rather than by letter. The information center was staffed by the social worker at the hospital who is also secretary of the committee, but all strictly medical questions were referred to the medical members.

In 1953 a repeat survey was made to determine whether improvement had occurred in the public's knowledge during the four years of intensive educational activity. The results of the two surveys were compared, and some of the answers were also compared with a newspaper report of a nation-wide Gallup Poll.

The second survey indicated that a marked improvement had occurred in the knowledge of the Waltham residents regarding cancer. This is well shown in Table 1 where the Waltham data are compared to those of the Gallup Poll. In the earlier periods, the percentages of individuals who knew no cancer symptoms were almost identical, the rates being 45.8 and 46.0 per cent respectively. In 1953 the Gallup Poll showed 46.0 per cent, while in Waltham the rate had dropped to 29.3 per cent. Inasmuch as the nation-wide survey showed no improvement and that in Waltham, a considerable improvement, it seems reasonable to attribute most of the difference to the intensive educational campaign that had been carried on there.

Table 2 shows the age-sex distribution of individuals with various degrees of knowledge regarding the danger signals. The males who were interviewed knew fewer danger signals than did the females, while in both sexes individuals older than age 60 knew fewer than those in the younger age groups. The detailed comparison between the two surveys showed that there were fewer individuals who knew none or one danger signal and a greater number who knew two, three, or more than in the previous survey.

The danger signals were not equally well-known. In Table 3 the percentage of individuals knowing the respective signals is shown. The 1953 survey showed an improvement over that in 1949.

TABLE 2
**Individuals Who Knew the Danger Signals of Cancer (Symptoms)
 by Age and Sex, 1953**

| | Males | | | Females | | | Both Sexes— All Ages | |
|------------------------------------|--------------------|-------|--------------------|--------------------|-------|--------------------|-------------------------|------|
| | Less than 30 | 30-60 | More than 60 | Less than 30 | 30-60 | More than 60 | 1953 | 1949 |
| No. Interviewed | 25 | 133 | 49 | 297 | 853 | 188 | 1550* | 996 |
| Av. no. of danger signals known | 0.64 | 0.66 | 0.59 | 1.55 | 1.54 | 1.08 | 1.36 | 0.82 |
| % individuals knowing | | | | | | | | |
| 0 danger signals | 64.0 | 62.4 | 63.2 | 21.9 | 21.8 | 38.3 | 29.3 | 45.8 |
| 1 danger signal | 12.0 | 18.8 | 22.4 | 30.6 | 30.9 | 28.7 | 29.0 | 32.7 |
| 2 danger signals | 20.0 | 12.0 | 6.1 | 25.6 | 26.6 | 21.8 | 23.9 | 15.6 |
| 3 danger signals | 4.0 | 4.5 | 8.2 | 16.2 | 14.8 | 10.1 | 13.2 | 4.8 |
| 4-6 danger signals | 0.0 | 2.3 | 0.0 | 5.7 | 5.9 | 1.2 | 4.5† | 1.0‡ |

* Unknown ages included

† 12 individuals knew 5; and 5 individuals knew 6

‡ 1 individual knew 5 signals

It was believed that knowledge of the danger signals was the best criterion for measuring public awareness but other indices have been used from time to time. In this study five others have been used: curability, contagion, treatment, attitude toward the disease (whether there would be reluctance to have the public know of cancer in the household), and a knowledge of the existence of local organizations trying to control cancer.

Realizing that there should be some correlation among the various indices, the percentage of correct answers for each one of the five supplementary questions

was obtained for individuals knowing one, two, three, and four or more danger signals. The percentages are given in Table 4 and they show significant upward trends for the first three items of knowledge but not significant trends for the answers concerning willingness of the public to know about cancer in the family and contagion. It is our opinion that there is too little difference in the five degrees of knowledge of the danger signals to warrant using this as an index of cancer knowledge.

Table 5 shows that there was a high percentage of persons who knew that some cancers were curable, that the disease was not contagious, and that roentgen rays, radium, and surgery were accepted forms of treatment; while more than 90 per cent were willing for the public to know of the presence of cancer in the family. A much smaller percentage knew of organizations working in cancer control. It is surprising that, in spite of the intensive drives by the American Cancer Society, many did not mention this organization. Although the sex difference (Table 5) was marked as to knowledge of the danger signals, females did not greatly excel males in their knowledge of curability or contagion. However, they were better informed regarding accepted treatments.

TABLE 3
**Percentage of Individuals Knowing
 Danger Signals**

| | 1949 | 1953 |
|--|------|------|
| 1. Sores that do not heal | 17.7 | 26.3 |
| 2. Lumps or thickening | 41.3 | 58.1 |
| 3. Bleeding or discharge | 18.2 | 31.2 |
| 4. Change in wart or mole | 2.2 | 5.3 |
| 5. Persistent indigestion or difficulty in swallowing | 2.5 | 3.9 |
| 6. Hoarseness or coughing | 2.6 | 6.3 |
| 7. Change in normal bowel habits | 1.5 | 3.2 |
| Danger signals 1, 2, and 3 known, —and in some instances, one or more others | — | 9.7 |

In this study as well as in similar previous ones, an effort was made to determine the relative value of the various educational media.^{2,3,4,5} The results were similar, showing that lectures, magazine articles, books, and pamphlets were the best sources of information, while the radio, movies, and posters were of much less importance. Newspapers showed considerably more importance as a source of knowledge than in other surveys. This is probably the result of the column edited by one of the local physicians, since this furnished continuous authentic material of an educational nature.

For the first time in a survey, the television was mentioned as a source of information. Slightly more than one sixth of those interviewed gave this as a source, but, when those having a knowledge of three or more danger signals were compared with those knowing none, the television showed little difference; hence its present value is considered of minor importance, similar to that of the radio and movies.

Some physicians have felt that cancer education carried with it the danger of creating a phobia. James Ewing's statement that people do not die of cancer phobia impressed many of them, but it failed to convince all. For this reason some information concerning phobias was sought.

The surveyors were requested to prepare statements regarding the reception

they received when they were collecting the data. No questions were asked regarding phobias and adverse opinion of educational methods, but it was believed that some estimate of this could be obtained from the attitudes observed. Only a very few individuals refused to co-operate, and most of these had excellent reasons. In one home a report of the death of a son in Korea had been received; in another there were five cancer deaths among near relatives; and a few refused because of work that had to be done. With the exception of one Christian Scientist, none expressed any aversion to cancer education, and some requested additional educational material. Apparently there was no indication that the public resents the dissemination of information on cancer.

Conclusion

There has been definite improvement in the knowledge of the public in Waltham following intensive educational activity. There was no indication that educational efforts had had an adverse effect. A comparison of the results of the Waltham Survey with those of the Gallup Poll strongly suggests a close correlation between the educational activities in Waltham and the knowledge assimilated. There has not been sufficient time to determine whether the death rates from cancer will reflect this intensive educational effort.

TABLE 4
Percentage of Individuals Knowing Danger Signals

| | Danger Signals | | | | | |
|---|----------------|------|------|------|-----------|-------------------|
| | 0 | 1 | 2 | 3 | 4 or more | Trend coefficient |
| % accepted treatments—surgery, x-ray, or radium | 41.8 | 78.0 | 87.6 | 95.1 | 100.0 | 13.3 |
| % knew of an organization working for cancer control | 8.8 | 19.8 | 28.8 | 37.7 | 61.1 | 12.3 |
| % believed that cancer can be cured | 64.3 | 77.5 | 79.0 | 82.4 | 91.7 | 5.9 |
| % believed that cancer is not contagious | 87.4 | 88.0 | 94.1 | 96.6 | 93.1 | 2.0 |
| % who would be willing to let the public know of cancer in the family | 92.3 | 92.4 | 92.5 | 95.6 | 98.6 | 1.6 |

TABLE 5

Percentage of Individuals with Knowledge Regarding Curability, Contagion, Treatment, and Organizations Participating in Cancer Control, 1953

| | Males | | | Females | | | Both Sexes— All Ages | |
|--|--------------------|-------|--------------------|--------------------|-------|--------------------|-------------------------|------|
| | Less than 30 | 30-60 | More than 60 | Less than 30 | 30-60 | More than 60 | 1953 | 1949 |
| % who knew an organization working for cancer control | 16.0 | 18.8 | 24.5 | 20.9 | 26.1 | 16.0 | 23.0 | 13.8 |
| % who believed that: | | | | | | | | |
| Cancer can be cured | 72.0 | 63.2 | 81.6 | 75.1 | 78.9 | 70.7 | 75.4 | 71.5 |
| Cancer is not contagious | 88.0 | 88.0 | 87.8 | 92.9 | 91.9 | 85.1 | 90.6 | 83.7 |
| % accepted treatments— surgery, x-ray, or radium | 48.0 | 51.9 | 42.9 | 77.4 | 80.1 | 60.1 | 73.1 | — |
| % who would be willing to let the public know of presence of cancer in the family | 84.0 | 92.5 | 93.9 | 92.6 | 94.3 | 91.0 | 92.9 | 87.5 |

Evaluative studies of this nature measure the effectiveness of educational methods and point toward weaknesses that need correction. While there has been a great improvement in Waltham, there still is a large percentage of the population

with little knowledge of the danger signals of cancer.

Inasmuch as early cancer is frequently detected by these symptoms, greater effort should be made to see that they are common knowledge.

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Forty Years Ago

Preliminary study of the records kept at the hospital and laboratories of one of the largest American centers of medical education, has given ample evidence to support the advice to seek early operative treatment. These records show clearly that the chances of a permanent cure, if operation be resorted to promptly are very high, and they show equally clearly that these chances decrease with every day of delay. And as the likelihood of cure becomes remote, the immediate danger and damage of the operation become greater. That is to say, a new and small cancer may be removed without much pain and without much mutilation, but an old and dispersed cancer leaves a serious wound behind it.

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This Business of Cancer Detection

C. B. Esselstyn, M.D.

This business of cancer detection is certainly not new. In 1861, Harold Willard tells us in a recent article, Horace Dobell published a book entitled "Lectures on the Germs and Vestiges of Disease, and on the Prevention of the Invasion and Fatality of Disease by Periodic Examinations" printed in London, England. In America, Gould, a dentist in Philadelphia, forwarded the idea in 1900. However, it was President Theodore Roosevelt in 1907 who first instigated any widespread application of the idea. By order of the Secretary of War, officers in the Army and Navy were put through rigorous annual check-ups, which included physical examination before and after three days of walking, three days of riding a bicycle, and three days of riding horseback.

In 1914 the Life Extension Institute inaugurated a more practical periodic health examination, which was offered to policy holders of certain insurance companies. This program, which included a brief history, physical examination, hemoglobin determination, serology, and urinalysis, was carried out by some 3000 qualified practitioners throughout the United States and Canada and was made available without cost to the individual policy holder. Concerning this program a quotation from the Proceedings of the Life Extension Examiners, a publication that reported the aims and results of these examinations, is of interest. "The foundation of the Institute constituted a pioneer movement in the realm of Preventive Medicine which met with immediate approval. Insurance companies have been impressed by the expression of appreciation they have received from those policy holders who have availed themselves of the privilege of the service. They have been satisfied by the increased longevity of the group examined."

Concerning the program, Elliott B. Edie, in a review of the literature in 1925,

stated that "of the policy holders who were offered these periodic examinations, only 2 per cent responded. Although notable results were obtained with those who were examined, there was not enough enthusiasm to lead to permanent and continued progress and the program did not survive the recent war years."

In 1914, the New York City Health Department started a program of periodic health examinations instigated by the Commissioner, Dr. Goldwater. In 1922 the American Medical Association by resolution of the House of Delegates authorized preparation of forms suitable for use by practitioners of medicine in making periodic health examinations. These blanks were largely the work of Haven Emerson. Also in 1922, a number of temporary clinics were set up in Pennsylvania during the week of the annual campaign for funds of the American Society for the Control of Cancer. The purpose of these clinics was to examine all comers specifically for cancer. In 1923 and 1924 the American Medical Association passed further resolutions urging (1) that state and county medical societies, hospitals, and medical schools prepare their members, associates, and students to undertake periodic health examinations; (2) that it be a paid service, except in case of the indigent; (3) that the family physician should continue to be the most important factor in this new field of prevention of sickness. Although this program also met with some success, it gradually fell off to the point of insignificance. It is interesting, in reviewing this history of periodic health examinations, to note the attitude of Massachusetts at the time the American Medical Association was passing this resolution, for the Committee on Public Health of the Massachusetts Medical Society went on record as believing that

From the Rip Van Winkle Clinic, Hudson, New York.

"periodic health examinations are a luxury." However, in the New York Times of Sunday, December 11, 1949, the following statement appeared, "A free health protection clinic, said to be the first of its kind in the country, will be opened to the general public in Boston on January 3rd, under the sponsorship of the Massachusetts Medical Society and the State Department of Public Health." This would seem to be proof that the idea is coming back into recognition again.

In 1927 the American Society for the Control of Cancer appointed a committee to explore the best method of improving the service to the cancer patient. In 1929 the report of this Committee, among other suggestions, included a more widespread organization of cancer clinics in general hospitals. It was felt that, in this way, the patient could be reasonably assured of: (1) complete examination, (2) accurate diagnosis, (3) group opinion, (4) accurate records, and (5) the best treatment to be offered in the community.

Following the suggestion of James Ewing, Elise L'Esperance, in 1937, and Catherine Macfarlane the following year, initiated their now famous experiments in New York and Philadelphia, in which large numbers of presumably well people were examined for cancer. Here began the slowly increasing wave of public acceptance of periodic check-ups, which was from here on not to be of a transient nature. We see public approval at first, growing into public demand, because of the successful operation of those centers, owing largely to the introduction into the periodic health examination of the name of cancer, a dread disease.

As a result of this the profession responded and today the American College of Surgeons recognizes and has set up minimum standards of approval for specific types of organizations especially created to carry on "this business of cancer detection."

First, there are the institutions known as approved cancer hospitals. Second, there are institutions conducting approved cancer clinics. Third, there are institutions conducting approved cancer diagnostic

clinics. And finally, there is the cancer-detection center. Today there are more than 250 such centers of which 151 have already met the minimum standards of the College. These centers are examining 3000 patients a day.

Through an increasing amount of publicity originating from public health agencies and especially the American Cancer Society, one of the most widespread educational programs ever to be carried on is enlightening the public day by day. The public today knows that this "business of cancer detection" is at least one modality through which, using only the knowledge and facilities that we have today, 25 per cent of the approximately 200,000 people annually dying of cancer in the United States (or 50,000 lives) can be saved. It is through awareness of such statistics that lay pressure is being generated.

How is this demand for cancer detection being answered? One of the institutions most concerned with this problem has been the United States Public Health Service. Aside from contributing considerable sums of money towards investigation, they have initiated experiments in mass screening of presumably well people for cancer, such as the project carried on in Florida. State departments of health have been active along the same line. Of the voluntary health agencies, the American Cancer Society has led the field. Practicing members of the profession, functioning through their representatives in the American Medical Association, have given support to the general principle of cancer detection, which through the very excellent work of the American College of Surgeons has been put into an orderly arrangement.

Three years ago the American Cancer Society held a conference at Portsmouth, New Hampshire, to get a national picture of this "business of cancer detection." Delegates were invited from representative parts of the entire country. It was felt that sufficient experience had been accumulated so that the results could be scrutinized profitably. Although it would be difficult to summarize accurately the con-

clusions of this very valuable meeting, one thing was apparent. The practicing physicians throughout the country had very different but nevertheless definite ideas about the advisability of attempting to screen large masses of apparently normal individuals in cancer-detection centers. The enthusiasm for this approach was greatest in the East, gradually diminishing until it became practically extinct on the West Coast. And today, three years later, I think it is fair to say that a national survey would show that the enthusiasm and demand for some sort of widespread cancer-detection program are much greater among the lay people than they are among the members of our profession. However, it is a question that must be answered. If it is not satisfactorily answered by our profession, it will be answered by the public. We must remember that 50,000 lives are in the balance—and the public knows it.

What are some of the alternative methods besides developing cancer-detection centers? A great many different schemes have been attempted. Actually, when all of these have been broken down to the lowest common denominator, they resolve into the slogan that would seem to be the most popular at the moment, at least with organized medicine, namely: "Every doctor's office a cancer detection center."

Approximately 34 per cent of newly diagnosed cancer in men will be found in accessible sites, namely, the buccal cavity, the skin, the rectum, and the anus. At the same time, 63 per cent of cancer in women will be found in accessible sites, namely, uterus, breasts, buccal cavity, skin, rectum, and anus. Certainly, any one doctor who is conscientious could cover this much territory.

In 1948 the three sites of the highest number of cancer deaths in the male (exclusive of prostate), constituting 40.5 per cent of the total, were (1) stomach, (2) bronchus and lung, (3) intestine; similarly, the same sites of cancer in females dying in the same year were: intestine, stomach, and bronchus and lung, representing 26.0 per cent of the total. In the light of these figures, does the screening possible in the average doctor's office

make it a good cancer-detection center?

We must realize that mass screening of lungs is today a practical reality and we must keep a very watchful eye on the mass photofluoroscopy of the stomach initiated by the work of Morgan and Roach at Johns Hopkins and being further carried on today, among others, by Swenson at Jefferson Medical College and by the New York Cancer Institute at Roswell Park in Buffalo. We cannot afford, in view of the increasingly favorable statistics resulting from surgery of the lung, to overlook any attempt to detect these cancers, which represent the second highest cause of death in men. Nor can we, with an increasing appreciation of the prolonged latent period of carcinoma of the stomach, especially in view of the increasingly effective surgical therapy and lowering operative mortality of surgery on this organ, fail to make any attempt to detect these cancers, which represent the highest cause of death in men. The same to a lesser degree applies to females.

To any of those who have had experience in the routine examination of the so-called symptom-free well adults, one thing becomes more and more obvious. "This business of cancer detection" is a very specialized branch. If we are to pick up early asymptomatic lesions, our methods must become increasingly refined and our examinations more and more meticulous. It becomes more and more time consuming and it requires more and more highly specialized ancillary specialists, such as cytologists, roentgenologists, and laboratory technicians, working as an integrated team. Let us not lose sight of our aim—the earliest possible detection of cancer. We must keep in mind the full realization that the success of the treatment of cancer is in inverse proportion to the number of days the lesion has been allowed to go undetected.

And so it becomes apparent that the conscientious physician practicing in an office with average facilities and equipment can neither afford the time nor has he available the necessary complement of equipment and technical personnel to undertake what today represents a good

cancer-detection screening. This is no more reflection on the conscientious doctor than is the fact that he is not able in his office, by himself, to remove a brain tumor. He can accomplish at best a partial screening. Partial, incomplete check-ups can do nothing but convey a false sense of security to some, apprehension to others, and in the end do more harm than good.

In the light of what we have discussed it becomes more and more apparent that "this business of cancer detection" has helped to focus the attention of an increasingly curious public on the very much larger problem of the entire picture of preventive medicine in the changing order. Because, just as the public is being acquainted with the over-all statistics of cancer, so it is also becoming aware that a screening adequate for the early detection of cancer is the same screening necessary for the maintenance of good health.

Let me give you some statistics taken at random from the report of several screening surveys:

436 screenings, 1555 defects found.

1721 screenings, only 11 per cent could be considered in normal health. This may give some support to the suspicion of Morton Levin that perhaps the normal individual can best be defined as one who has been inadequately studied.

350 screenings, average age 45 years, 1.2 per cent physical defects per examinee.

1000 business executives, 18 per cent normal.

91 practicing physicians screened in Brooklyn, N. Y. All of them were found to have defects. Seventy-five per cent of them were moderately advanced, 4 per cent had defects listed as far advanced.

These are typical of the nonmalignant

defects discovered when a cancer screening is made. Our own experience in the Rip Van Winkle Clinic, where a complete type of examination is carried out, showed that in the first 360 examinees 2.22 per cent had cancer, 28 per cent had a precancerous lesion, but 73 per cent had nonmalignant organic disease.

The more the significance of these findings is appreciated by the general public, the more the public is going to demand greater attention to the symptom-free well adult who until now has surely been the forgotten man in medicine. Already business has come to recognize the strictly financial advantage of conserving its executive members by affording to them the most careful kind of annual screening. What business is doing today, the family will do tomorrow.

In conclusion, therefore, we find that this business of cancer detection has borne some unexpected problem children, who like all problem children must have special attention. The public today is beginning to ask: Why has not the solo-practicing physician been able to offer better preventive medicine? Why is there such a widespread resistance to cancer-detection centers? Does it imply that medicine today is too complex to be handled by single individuals or that the time for integrated teams of specialists is here? Or is it that a fee-for-service economy does not stimulate the interest and desire on the part of the physician to make the sacrifices necessary to carry on preventive medicine? Does it imply that the whole problem of screening should be turned over to the public health agencies or will the physicians themselves find a way?

Those questions will be answered—by whom? Let us hope that the medical societies of the United States will squarely meet and firmly answer these vital issues.

Cancer Detection in the Physician's Office

A County Medical Society Reports a Successful Pilot Experiment

Ian Macdonald, M.D., and L. Henry Garland, M.D.

"Present rates of cancer control are far short of what is theoretically achievable, particularly when the disease occurs in certain accessible sites. The case for cancer detection procedures is based on the premise that periodic physical surveys of asymptomatic persons would uncover concealed cancer at a curable stage in such numbers as to be a rewarding effort, commensurate with the time, effort and cost involved. Statistical evidence indicates that this objective can be reached, but only if there is an informed segment of the population which will persist in being screened year after year.

"In our present state of knowledge, the only effective means for improvement of end results is to bring the patient to effective treatment at an earlier anatomical stage of the disease, which can best be done when the process is still occult or asymptomatic.

"The public is being indoctrinated with the importance of detection procedures; it is the responsibility of the profession to provide periodic health surveys for those who seek such service. It should be emphasized that the objective should be the detection of incipient or occult disease in general, even though the theme of cancer detection may be the most effective lever in securing the interest of presumably well persons."

Such were some of the conclusions of the Cancer Commission of the California Medical Association, based on a continuing study of cancer-detection procedures over a period of eight years. During a two-year period, the Commission conducted an experiment in the operation of four cancer-detection centers. From this study and from investigation of other such projects, the Cancer Commission concluded that the detection centers did not achieve the potential value of the pro-

cedure, mainly because they failed generally in securing consecutive yearly examinations of more than a small fraction of their examinees. The true yield of asymptomatic cancer reported by detection centers is less than 1 per cent. By calculation, it seems certain that consecutive, yearly examination of a representative segment of the population more than 40 years of age would produce, at the end of ten years, a cumulative yield of about 8 per cent.

The Cancer Commission became convinced that the best approach to obtaining long-term co-operation of well persons, with the widest possible geographical coverage, would be through the development of an intensive program of cancer detection in the physician's office. It seemed most probable that the rapport established by the family physician with his patients and their families would be most conducive to an objective of the greatest good for the greatest number. At the same time, the Commission is aware that, by reason of special interests or plain disinterest, the slogan "EVERY physician's office a cancer detection center" is unrealistic and emphasizes the enlistment of "every INTERESTED physician."

The Commission undertook a calculated estimation of the potential benefits of yearly detection procedures, in asymptomatic individuals, more than 40 years of age, for a ten-year period. On the basis of a thorough survey of accessible sites, as depicted so effectively in the Society's movie "Living Insurance," the physician can detect occult cancer in sites responsible for almost 50 per cent of cancer deaths in women (breast, cervix, rectum, skin, oral cavity, thyroid, and larynx). By

From the Cancer Commission, California Medical Association, 450 Sutter Street, San Francisco 8, California.

treatment during the presymptomatic phase, mortality from this group of cancers in women would be reduced by more than one half. For men, the calculated dividends of cancer detection are not so great, because of the predominance of cancer of inaccessible, visceral sites. Accessible sites of cancer contribute some 30 per cent of the total mortality in the male (rectum, prostate, oral cavity, skin, thyroid, and larynx), and detection procedures should eliminate one third of these deaths.

The Commission thus committed itself to a program of cancer detection in private practice, mainly by family physicians, internists, and general surgeons, and to the advocacy of widespread use of a standard detection examination in the physician's office. We believe that more cancers will be discovered by such a program than by a more restricted use of elaborate procedures. The Commission does not discount the value of well-conducted detection centers, particularly in the development of screening techniques and for their educational benefits.

The next step in sponsoring an office detection program seemed obvious—the necessity for a test of its effectiveness. Some valid evidence that the program would promise to equal or even exceed the performance of detection centers would endorse the Commission's philosophy; failure to secure such evidence in practice would invalidate the program.

The Pilot Test

The Cancer Commission prepared a model program for trial in one or more of the component county medical societies in the state medical association. Discussions were held with the officers of the Riverside County Medical Association and plans were completed for trial of an office detection program in that county for a period of twelve months. In June 1952, Dr. J. S. O'Toole, chairman of the Cancer Committee of the Riverside County Medical Association, sent a letter to internists, general surgeons, and general practitioners inviting their co-opera-

tion. At the end of twelve months the cards were tabulated and the effectiveness of the project analyzed by Dr. C. P. McCullough, who co-ordinated and reported the program.

Purposes of the Pilot Test

This survey was undertaken in an effort to answer the following questions:

1. How successful is publicity in increasing the number of people who regularly see their physicians for physical examinations?
2. What has been the effect of publicity in encouraging people to visit their physicians at the first appearance of signs or symptoms of cancer?
3. How many and what types of cancer can be detected by physical examination in the supposedly well patient, with special reference to the accessible sites of the body?
4. How successful is this type of cancer detection?

Method of Procedure

1. Publicity: an extensive publicity campaign by members of the Riverside County Medical Association, aided by the County Branch of the American Cancer Society, California Division, was carried on for one year prior to the survey. This publicity stressed the value of annual physical examination of adults in detection and prompt treatment of cancer, especially of the accessible sites.
2. Secretarial service in collection of reports from physicians and compilation of statistics was arranged by a grant of \$1500 from the American Cancer Society, California Division.
3. Members of the Riverside County Medical Association were canvassed and thirty-four physicians agreed to take an active part in the survey.
4. Doctors' secretaries were personally interviewed and contributed greatly to the success of the project.
5. Distinctive colored cards were sent to each secretary, to be clipped to the history form of the physician for each new

TABLE I
Results—The Statistical Report

| | |
|---|-----------|
| Number of physicians participating in survey | 34 |
| Number of patients examined | 6,765 |
| Number of proved malignant tumors discovered | 280 |
| Percentage of patients found to have malignant tumors | 4.1 |
| Number of lesions biopsied | 612 |
| Number of lesions biopsied classed as malignant | 212 |
| Percentage of biopsies classed as malignant | 34.6 |
| Number of lesions biopsied classed as precancerous | 87 |
| Percentage of biopsies classed as precancerous | 14.0 |
| Percentage of precancerous lesions in patients examined | 1.3 |
| Number of other pathological conditions found which required observation or treatment | 532 |
| Percentage of patients with other pathological lesions | 7.8 |
| Average age of patients examined | 46 |
| Proportion of males to females in this survey | 1 to 3 |
| Percentage of malignant tumors in asymptomatic patients | not known |
| (Varied methods of reporting allowed too much error for an accurate appraisal) | |

case examined. This card listed the following: Date, initials, age, sex, brief pertinent history, pathological condition found, pathological diagnosis, and signature.

6. It required only a few minutes of the physician's time to make notations on the card. This card was removed from the history and sent to the control secretary's office weekly. Each month all cards were reviewed by the Cancer Committee and tabulated.

7. To avoid duplication of reports, only the referring physician reported patients who were seen by others in consultation.

Conclusions

Cancer-detection examinations by phy-

sicians in their private offices were performed as a county medical society project for a period of one year.

In a series of 6765 patients examined, 612 were found to have lesions clinically suspect for tumor. The total number of proved cancers discovered was 280 and the number of lesions classified as precancerous was eighty-seven.

This yield of neoplasms discovered compares favorably with reports from special cancer-detection centers.

The Cancer Commission believes that periodic health examinations in the offices of private physicians of persons beyond the age of 40 is a practical approach to the problem of earlier detection of tumors at accessible sites—the tumors that are the most readily curable by current surgical and radiotherapeutic techniques.

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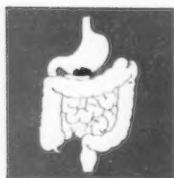
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DOCTOR — In your practice...



out of every 1000 women more than 45

18 will have cancer



4 will have cancer of the gastrointestinal tract____

4 will have cancer of the breast_____



4 will have cancer of the female genital tract____

2 will have cancer of the skin_____



4 will have cancer of other sites_____

Source: Cancer Illness among Residents of

...
out of every 1000 men more than 45

17 will have cancer

6 will have cancer of the gastrointestinal tract__



2 will have cancer of the respiratory system__

2 will have cancer of the genitourinary system__



3 will have cancer of the skin_____

4 will have cancer of other sites_____



Report from Cancer Detection Clinic, Women's College Hospital, Toronto

Florence S. McConney, M.D., Director

The Cancer Detection Clinic was opened at the Women's College Hospital in April, 1948. It began in a modest way on one day a week in the Out-Patient Department but grew so rapidly that in less than two years it moved to its present quarters, the whole ground floor of a house owned by the hospital. This was completely remodelled into waiting rooms, dressing cubicles, and five examining rooms and is in use five days a week. Our set-up is rather different from that in some other clinics in that doctors from the different hospital services do the various parts of the examination.

A patient on coming to the clinic is seen by the nurse who takes her height, weight, and family history. Then she goes to an otolaryngologist who examines her ears, nose, and throat. In the next room an internist checks her heart, lungs, and nervous system. A surgeon examines her breasts, abdomen, and rectum and takes a rectal smear. If necessary she is seen by a dermatologist. Then the gynaecologist does a pelvic examination and takes a cervical smear. (We do not use the Papanicolaou technique; the cervix is scraped with a wooden spatula, the scrapings are embedded in wax and cut and examined as a pathological specimen.) Urinalysis, blood Wassermann, red and white cell counts, and haemoglobin estimation are done. Finally the patient is taken to the hospital for a chest roentgenogram. The complete report is sent to the physician of the patient's choice.

The clinic has the approval of the Toronto Academy of Medicine and the Ontario Medical Association and is subsidized by the Ontario Cancer Treatment and Research Foundation—that is, the examination costs \$19.23 per patient of which the patient pays \$15.00 and the Foundation the rest. Outside of Toronto

and its suburbs our patients have come from 240 places in Ontario and from fifteen places outside of Ontario.

From April 1948 to October 1953 we have examined

| | | |
|--|-------|--------|
| Total number examinees | 8,093 | |
| Total repeat examinations | 2,089 | |
| Total number, examinations | | 10,182 |
| Positive finds, confirmed by biopsy or operation | 51 | |
| Very suspicious, no follow-up available | 47 | |
| | | 98 |
| Suspicious: re-examined at intervals | | 260 |

Our percentage of positives is lower than that of most similar clinics, partly because we count only those confirmed by biopsy and/or operation and partly because we try not to take any patient with symptoms. As our waiting list is four months long, we feel that a patient with symptoms should see her doctor immediately.

Positive Cases

| | | | |
|-------------------------|----|---------------------|---|
| Cancer of breast | 8 | Cancer of eyelid | 2 |
| Cancer of cervix | 12 | Paget's disease | |
| Basal carcinoma of skin | 18 | of nipple | 1 |
| Cancer of lung | 3 | Lymphatic leukaemia | 1 |
| Cancer of rectum | 2 | Cancer of stomach | 1 |
| Rodent ulcer | 3 | | |
| TOTAL—51 | | | |

We have the generous and kindly support of the doctors of this province who continue to refer their patients to us.

We feel that the clinic is doing valuable educational work in training people to have examinations for cancer. We are also carrying on a research project in following those cases with suspicious cervical smears with repeated check-ups to see what percentage of them will become positive.

Review of 1175 Women Office Patients Examined for Cancer and Other Diseases

Maurice Fremont-Smith, M.D.

If we are to cure cancer (and this is true of many other diseases), early diagnosis is essential. The responsibility for early diagnosis lies primarily in the hands of the general practitioner and the internist. Particularly is the internist, with more time at his disposal, in a uniquely favorable position to detect early lesions. In an attempt to estimate the value of an internist's office as a "detection center," data have been reviewed on 1500 consecutive new patients seen over a seven-year period (1946 to 1954), and an analysis is presented of the diagnoses established in 1175 female patients examined during this period.

It is the author's conviction that examinations for single specific diseases, performed in specialized detection centers, constitute uneconomic and often specious medical practice. He believes it better for each individual to be investigated initially as a whole and without diagnostic emphasis upon any one pathological condition. The patients here reported have been given a general diagnostic survey with simple laboratory examinations and roentgenograms where indicated.

Tables 1 and 2 list the various diagnoses made on 1175 consecutive women patients.

Diabetes

Tests for glycosuria were done on all patients and blood-sugar determinations on 536. In 497 cases the blood sugar (usually taken one to two hours after a meal) fell to less than 125 mg. per 100 cc. Readings of more than 125, but less than 150, mg. per 100 cc. were obtained in eleven instances. Seven cases of frank diabetes (three previously known and four new cases) were found. In two cases blood sugars of more than 200 mg. per 100

TABLE 1
**Nonmalignant Diseases Found in
Examinations of 1175 Women
Office Patients**

| Disease | No. |
|------------------------------------|-----|
| Diabetes | 10 |
| Thyrototoxicosis | 7 |
| Myxedema | 2 |
| Pulmonary tuberculosis | 2 |
| Syphilis | 2 |
| Gallstones | 26 |
| Diverticulitis of colon | 28 |
| Duodenal ulcer (active, 8; old, 3) | 11 |
| Coronary disease | 10 |
| TOTAL | 98 |

TABLE 2
**Malignant Lesions Found in 1175
Women Office Patients**

| Site | No. |
|-------------------------------------|-----|
| Cervix (stage 1, 2; preinvasive, 7) | 9 |
| Endometrium | 3 |
| Breast | 4 |
| Skin | 4 |
| Colon | 4 |
| Bladder | 4 |
| Thyroid | 2 |
| Stomach | 2 |
| Sigmoid | 2 |
| Ovary | 2 |
| Tube | 1 |
| Kidney | 1 |
| Vagina (recurrence) | 1 |
| TOTAL | 39 |

cc. were unaccompanied by glycosuria.

Two further cases with blood sugars of 243 and 208 mg. per 100 cc. respectively later gave consistently normal blood-sugar values one-half hour and two hours after a high carbohydrate meal. A third case with an initial high blood sugar has had many normal blood-sugar determina-

From the Massachusetts General Hospital, Boston, Massachusetts.

tions over the past three years. However, a glucose tolerance test on this last patient revealed figures of more than 250 mg. per 100 cc. at both half-hour and one-hour determinations. If these three cases, all presumably early mild diabetics, are included, a total of ten women in this series were found to be diabetic.

Thyroid Disease

Basal metabolic rates were determined on ninety patients. Thyrotoxicosis was present in seven. Two cases of myxedema were clinically recognized and confirmed by test. One of these women had been diagnosed as a psychoneurotic and had been treated unsuccessfully by psychoanalysis for three years. Prompt recovery followed thyroid medication. Adenomas of the thyroid were present in six patients; in two cases operation disclosed malignant disease.

Syphilis

Hinton blood tests (Massachusetts Department of Public Health) were performed on 851 patients. Three were reported positive; in each case latent asymptomatic syphilis was present.

Tuberculosis

Only two cases of active pulmonary disease were discovered. (As will be seen in Table 4 the large majority of women in this series were 30 years of age or older.) Two hundred and seven chest roentgenograms were taken. Evidence of healed tuberculosis was demonstrated in twelve.

Gastrointestinal Disease

Roentgenograms of the stomach and duodenum were obtained in 120 patients. Active duodenal ulcer was found in eight; duodenal deformity without crater, in an additional three cases.

One hundred and twelve roentgen-ray examinations of the colon disclosed diverticulitis in twenty-four, malignant disease of the colon in four. Of thirty-eight wom-

TABLE 3

Precancerous Lesions

| Type | No. |
|----------------------------|-----|
| Rectal polyps | 4 |
| Thyroid adenomas | 4 |
| Gallstones (?precancerous) | 26 |

en with a history of rectal bleeding or with stools positive to the guaiac test, sigmoidoscopy disclosed polyps in four. Gallstones were demonstrated by Graham test in twenty-six of 104 examinations.

The finger specimen obtained on rectal examination was submitted to guaiac test in 294 patients. A positive test was obtained on twenty-six. This test was primarily responsible for the discovery of an adenocarcinoma of the transverse colon in one woman and of a rectal polyp in a second.

Cancer

In the examination of 1175 women, thirty-nine instances of carcinoma were found (Table 3). Cancer occurred in the following organs: uterus, twelve; breast, four; skin, five; bladder, four; colon, four; thyroid, two; stomach, two; rectum, two; ovary, two; and once each in kidney, fallopian tube, and vagina (recurrence).

Because of the high incidence of gynecological cancer it was thought that this group might include a preponderance of women with symptoms of malignant disease. This does not seem to have been true. Of the 1175 women, but fifty-nine presented themselves with specific gynecological complaints. On direct questioning only 108 admitted leukorrhea and only thirty-four, abnormal vaginal bleeding. These figures suggest that the group represents a fair sampling, and that "weighting" in the direction of gynecological disease was absent. Moreover, in the majority of cases in which uterine or ovarian cancer was found, no symptoms were present. Of the nine instances of carcinoma of the cervix, abnormal bleeding had occurred in three and leukorrhea in one. Of the three with endometrial

carcinomas, recent vaginal bleeding had occurred in two who had previously received continuous estrogenic treatment over several years. In the third case neither bleeding nor discharge was present. A positive smear led to curettage with negative findings. Following hysterectomy a small area (1 cm.) of adenocarcinoma, Grade II, of the endometrium in the right cornu was found. A large cervical polyp had made it impossible to reach the lesion with the curette. Entirely without symptoms were the two patients with ovarian cancer and the one with adenocarcinoma of the fallopian tube.

Two patients with ovarian masses proved to have adenocarcinoma of the ovary. One case was in an early stage and all cancer is believed to have been removed. In the other case peritoneal seeding had occurred. Today, seven years after radiation therapy, this woman is well and without signs of recurrence. In another patient with a mass in the right vault, the ovarian tumor was benign but the fallopian tube showed early carcinoma.

Two cases of advanced cancer occurred. In one, primary unsuspected carcinoma of the cecum with widespread metastases was found at autopsy. Another woman complained of abdominal pain. Over a two-year period roentgenograms of the stomach in two different offices were reported negative. Not until an epigastric mass was felt was gastric carcinoma suspected and proved at operation. A cytological examination of gastric fluid was not done.

Vaginal Smears

Single initial vaginal smears satisfactory for diagnosis were obtained from 1006 of the 1175 women. (All smears were examined in the Vincent Memorial Laboratory under the direction of Mrs. Ruth Graham.) There were 958 negative smears, forty-two doubtful, and six positive. In four of the women with initially doubtful smears, later smears were positive. Smears were still reported doubtful in two cases later operated upon because of positive biopsy reports. Of the remain-

ing thirty-six women whose initial smears were doubtful, five could not be followed; subsequent negative smears were obtained in thirty-one. One known false positive was reported (no cancer disclosed at operation).

Still under observation are two interesting cases, the first seen before this series was begun. A 70-year-old woman with known pernicious anemia has been followed by smear since 1945. Smears were reported negative in 1945 and 1947; doubtful in 1950 and 1951; positive later in 1951 and in 1953. Pelvic examination has been normal throughout. This is the only case in which smears have progressed from negative to positive under observation.

In a second case, seen first in 1949, successive smears were reported as follows: negative, positive, doubtful, and (1953) negative. This cervix continues to appear normal and stains uniformly with Schiller's solution.

That positive smears should later become negative is not unexpected, since, even after the existence of carcinoma in situ of the cervix has been established by fixed-tissue preparations, the lesion has been known to disappear. During the years 1934 to 1947 Kottmeier studied 114 cases of carcinoma in situ of the cervix at the Radiumhemmet. Twenty-two cases received a full course of radiotherapy; thirty-three, an incomplete course; and fifty-nine, no treatment. Invasive cancer developed in 10.5 per cent of the entire series, and in 13.6 per cent of the fifty-nine untreated cases followed five or more years. Kottmeier says "Thus it is obvious that in a relatively large percentage of cases carcinoma in situ develops into invasive carcinoma. . . . On the other hand it is very probable that atypical changes in the cervix, so-called carcinoma in situ, can spontaneously regress."

If we could learn not only how many, but which, cases would regress to normal or what factors in host or tumor favor such regression, we should then be able to avoid radical surgery for many women who now must have the uterus removed when a diagnosis of carcinoma in situ is

TABLE 4
Malignant Lesions by Decades

| Age, yr. | No. Patients | No. smears taken | Carcinomas | | |
|------------|--------------|------------------|------------|-----------|-------|
| | | | Uterine | All other | Total |
| 10-19 | 41 | 8 | | | |
| 20-29 | 145 | 106 | | | |
| 30-39 | 192 | 175 | 1 | 1 | 2 |
| 40-49 | 282 | 257 | 4 | 4 | 8 |
| 50-59 | 254 | 233 | 4 | 3 | 7 |
| 60-69 | 178 | 155 | 2 | 15 | 17 |
| 70-79 | 66 | 58 | 1 | 4 | 5 |
| 80 or more | 17 | 14 | | | |
| TOTALS | 1175 | 1006 | 12 | 27 | 39 |

substantiated by fixed-tissue preparations.

Of the 1175 women examined, twelve instances of uterine cancer were found: nine of the cervix and three of the endometrium. Two of the cervical cancers were in stage I; seven were carcinoma in situ (stage 0). Of the stage-I cancers, one was recognizable on visualization of the cervix. A positive smear in this case was therefore not diagnostic. In the second the cervix could not be seen. Primary detection in this case and in the seven cases of carcinoma in situ was made by initial vaginal smear, which was positive in three and doubtful in four. A second smear in three of the doubtful cases was reported positive; in the fourth case positive biopsy established the diagnosis before a second smear was obtained. Of the endometrial cancers, initial smears were doubtful in two cases and positive in the third. Of the two cases with doubtful smears, a repeat smear was positive in one and again doubtful in the second. Operation was performed following positive findings on curettage.

Table 4 lists patients with malignant disease according to age groups. Whereas the majority of malignant lesions were found in the sixth decade, the largest number of uterine cancers appear in the fourth and fifth decades. This is consistent with the fact that, whereas early diag-

nosis of malignant disease in other regions of the body was not frequently made, use of the vaginal smear made possible early detection of the majority of uterine lesions.

Summary

Thirty-nine cases of cancer, ten cases of diabetes, seven cases of thyrotoxicosis, and two of active pulmonary tuberculosis were found in an examination of 1175 consecutive female office patients. Of 851 Hinton blood tests, three were positive. A single vaginal smear from 1006 women primarily detected ten of twelve carcinomas of the uterus and was positive (but not primarily diagnostic) in the eleventh case.

Conclusion

Evidence is presented that periodic office examinations discover early disease sufficiently often to justify such individual preventive medicine both from economic and humanitarian points of view.

The internist and the general practitioner must both share the responsibility for the diagnosis of early lesions.

Reference

1. Kottmeier, H. L.: *Carcinoma of the Female Genitalia*. Baltimore, Williams & Wilkins Co. 1933; pp. 30-31.

Cytology and Gastric-Cancer Diagnosis

Frederick G. Panico, M.D.

In recent years there has been an increasing realization that the successful surgical attack on gastric cancer depends upon the early recognition of the disease process. In spite of this realization, the diagnosis of the gastric lesion has depended in most instances upon the gross mucosal alterations that reflect anatomical defects or physiological dysfunction. Unfortunately, such obvious gastric changes usually occur with advancing disease.

With the lesion of the stomach situated in a relatively obscure position, an unknown amount of time elapses between the formation of the microscopic cellular deviations and the development of the gross structural abnormality. Gastric tests that are used to detect the gross abnormality are oftentimes interpreted by statistical probability attained through accumulated pathological correlation. The criteria of malignancy that are established on the basis of such tests may be fairly accurate. Yet, pathological substantiation is still considered final.

The pathological biopsy that is obtained with the gastroscope requires the selection of adequate tissue from the source of the lesion. Without the deep-seated tissue configurations of advancing disease, the cellular deterioration of early disease may be so localized or minor that the significance of such change is missed in the study of the particular section. Therefore this type of biopsy is not always helpful in the discovery of early malignant disease.

The cytological biopsy that is taken with the gastric tube is dependent upon the proper preservation of the individual cells being processed for study. Because diseased gastric cells have an inherent tendency to exfoliate, mechanical methods can be employed to collect the necessary abnormal cells from the stomach. In this way, gastric cytology may be helpful in

differentiating the benign from the malignant gastric lesion with a substantial degree of accuracy.

Since early cancer is a microscopic cellular entity, the gastric smear is one microscopic cellular technique that can be used to advantage in the recognition of incipient disease. Inasmuch as the surface cells of a malignant lesion are practically the same in both early and advanced disease, gastric cytology may play an increasing role in the interception of early malignant disease. Already we know that a positive cytological smear can be used to preclude the gamut of standard gastric studies. In a similar respect, cytology may be used to augment the tentative findings of roentgenographic studies prior to pathological confirmation.

The case histories of three patients who underwent diagnostic study for the possibility of stomach lesions are presented in review. Despite a combination of standard gastric tests the presumptive preoperative diagnosis remained relatively uncertain in each case. The gastric cytological smear was informative according to the subsequent surgical pathology. The reports are of particular interest in that all three patients are living more than two years since surgical excision of their respective gastric lesions.

Case 1

Mr. P. C., a 64-year-old white man, was first seen because of indigestion over a period of eight years with recent exacerbations of three months' duration asso-

Browning, Montana.

Material has been utilized from the Department of Anatomy, Cornell University Medical College; the Department of Surgery, New York Hospital; and the Department of Surgery, Memorial Center for Cancer and Allied Diseases, New York, New York; and from the departments of Surgery, University of Maryland School of Medicine and the Baltimore City Hospitals, Baltimore, Maryland.

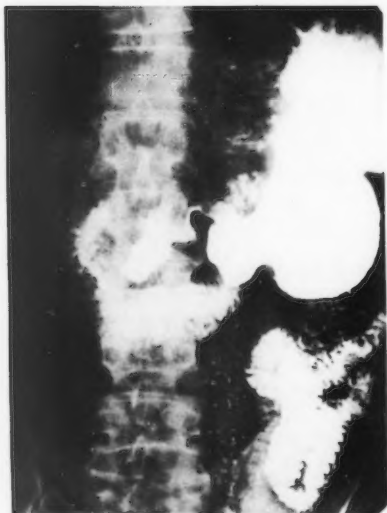


FIGURE 1. P.C. Gastrointestinal roentgenographic series revealed an annular constriction in the prepyloric area of the stomach.

ciated with a 10-lb. loss of weight. Physical examination was not revealing. Gastric analysis showed 13 units of free acid and 53 units of total combined acid. Stool examinations were negative for blood. A gastrointestinal roentgenographic series (Fig. 1) demonstrated an annular constriction in the prepyloric area of the stomach that was suggestive of an active ulcer or a possible carcinoma. The abra-



FIGURE 2. P.C. Gastric cytological smears, Class V, conclusive for gastric cancer. ($\times 670$.)

sive gastric-balloon cytological test produced clusters of cells with enlarged hyperchromatic nuclei arranged irregularly. Gastric cytology (Fig. 2) was Class V, conclusive for a malignant lesion. An exploratory laparotomy and subtotal gastric resection with anterior gastroenterostomy were performed. Gross pathology of the stomach (Fig. 3) revealed a small ulcer, with a diameter of 2 cm., situated along the lesser curvature of the prepyloric region associated with hyper-



FIGURE 3. P.C. Subtotal resection of the stomach revealed a small (2-cm.) ulcer on the lesser curvature of the gastric prepylorus.

trophic gastric rugae radiating from the central portion of the ulcer base. Microscopic pathology of the gastric lesion revealed a Grade-II gastric adenocarcinoma with extension limited to the muscularis mucosae. All lymph nodes examined were negative for tumor invasion. The postoperative course was uneventful. The patient is living and well more than four years since resection.



FIGURE 4. M.M. Gastrointestinal roentgenographic series revealed a 6-cm. lesser-curvature-ulcer crater proximal to the incisura angularis.

Case 2

Mrs. M. M., a 53-year-old colored woman, was first seen because of postprandial fullness over a period of five months with vomiting of five weeks' duration associated with a 26-lb. loss of weight. Essential findings on physical examination were pallor and a tender mass in the left

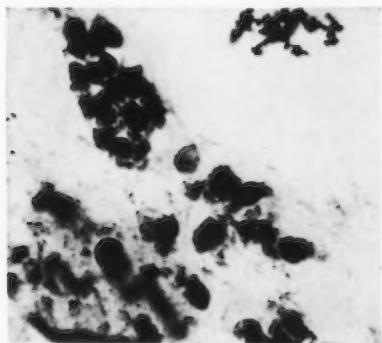


FIGURE 5. M.M. Gastric cytological smears. Class II, negative for cancer but compatible with gastric ulceration. ($\times 528$.)

upper quadrant of the abdomen. Gastric analysis could not be accurately determined because of frank blood in the aspirate. Stool examinations were positive for blood. A gastrointestinal roentgenographic series (Fig. 4) demonstrated a huge lesser-curvature-ulcer crater, more than 5 cm. in diameter, proximal to the incisura angularis and suggestive of a malignant ulceration. The abrasive-gastric-balloon cytologi-



FIGURE 6. M.M. Subtotal resection of the stomach revealed a large (8×5 -cm.) ulcer on the lesser curvature of the gastric fundus.

cal test produced many red blood cells, lymphocytes, polymorphonuclear leukocytes, and atypical surface epithelial cells. Gastric cytology (Fig. 5) was Class II, negative for a malignant lesion, the smear findings being compatible with gastric ulceration. The abrasive-balloon test was repeated three times without finding evidence of malignant cells. An exploratory laparotomy and subtotal gastric resection with gastroenterostomy were performed. Gross pathology of the stomach. (Fig. 6) revealed a craterous ulceration, measuring 8×5 cm., with necrotic margins and a fibrous base. Microscopic pathology of the gastric lesion revealed a benign chronic gastric ulcer with erosion into the pancreas. There was no evidence of cancer. The postoperative course was essentially uneventful. The patient is living and well more than two years since resection.

Case 3

Mr. G. G., a 61-year-old white man, was first seen because of acute hematemesis and melena of one day's duration. There was a history of poor appetite for nine months associated with a 26-lb. loss of weight. Physical examination was essentially nonrevealing except for evidence of pallor and weight loss. Gastric analysis could not be accurately determined because of frank blood in the aspirate. Stool examinations were positive for blood. A

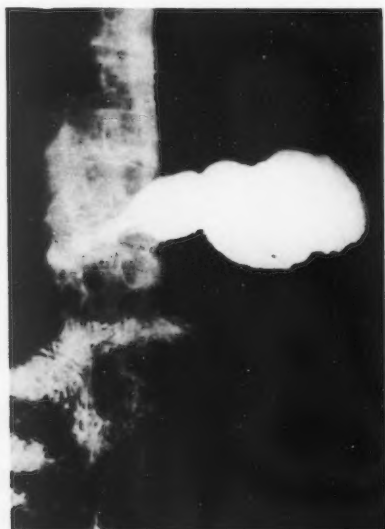


FIGURE 7. G.G. Gastrointestinal roentgenographic series revealed a horizontal "cup and spill" type stomach with constant narrowing of the distal portion of the stomach.

gastrointestinal roentgenographic series (Fig. 7) demonstrated a horizontal "cup and spill" type stomach with a constantly narrowed distal end suggestive of an acute antral ulcer or a possible carcinoma. Gastroscopy revealed atrophic mucosal patterns associated with a projecting mass along the lesser curvature. The abrasive gastric-balloon cytological test produced many clusters of irregularly arranged cells with enlarged hyperchromatic nuclei. Gastric cytology (Fig. 8) was Class V, con-

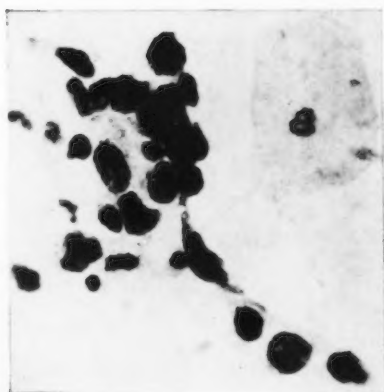


FIGURE 8. G.G. Gastric cytological smears, Class V, conclusive for gastric cancer. ($\times 528$.)

clusive for a malignant lesion. An exploratory laparotomy and total gastrectomy, splenectomy, and omentectomy with esophagojejunostomy and jejunojejunostomy were performed. Gross pathology of the stomach revealed a 3-cm. round elevated mass on the lesser curvature of



FIGURE 9. G.G. Total resection of the stomach revealed a 3-cm. elevated mass along the lesser curvature of the gastric antrum.

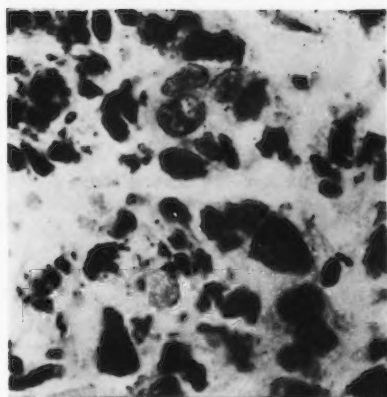


FIGURE 10. G.G. Pathological sections revealed a Grade-III gastric adenocarcinoma without evidence of lymph-node metastasis. This section shows representative malignant cells from the surface of the lesion. ($\times 528$.)

the gastric antrum (Fig. 9). Microscopic pathology of the gastric lesion (Fig. 10) revealed a Grade-III gastric adenocarcinoma extending through the muscularis without evidence of lymph-node metastasis. The postoperative course was essentially uneventful. The patient is living in a fair state of health more than two years since resection.

Comments

Exact diagnostic measures are constantly being sought to increase the accuracy of gastric-cancer detection. Advances in gastric cytology afford a strong positive approach to gastric diagnosis.

The cytological interpretations of suspicious gastric lesions are rather gratifying in the follow-up of certain operative cases.

References to Detection of Cancer in Previous Issues of CA

- 1:20, Nov., 1950: Early diagnosis most important [breast].
- 1:28, Nov., 1950: Cancer detection derby.
- 1:72, March, 1951: Cancer cases in detection centers exceed expected total.
- 1:76, March, 1951: Routine proctoscopy urged.
- 1:94, March, 1951: A lesion from a layman.
- 1:99, March, 1951: U. S. cancer-control data.
- 1:105, May, 1951: Cancer detection in industry.
- 1:181, Sept., 1951: Value of genetics for early diagnosis of cancer.
- 1:199, Sept., 1951: Which groups need educating most?
- 2:38, March, 1952: Cancer detection in rural practice.
- 2:40, March, 1952: Results in a cancer-detection center.
- 2:43, March, 1952: Cancer-detection-center results.
- 2:57, March, 1952: Cytological techniques in screening uterine and lung cancer.
- 2:64, March, 1952: When are smears indicated?
- 2:78, May, 1952: Early diagnosis of pancreatic cancer.
- 2:144, July, 1952: Extra dividends from cancer detection.
- 3:123, May, 1953: Survey of diagnostic delay.
- 3:171, Sept., 1953: Early diagnosis in physician's office.
- 3:171, Sept., 1953: Early diagnosis of cancer.
- 3:175, Sept., 1953: Early diagnosis and cancer cure rates.
- 3:177, Sept., 1953: Early diagnosis and curability of cancer through the years.
- 3:188, Sept., 1953: The diagnosis of early carcinoma.
- 3:225, Nov., 1953: Unsuspected uterine cancer.

CANCER CLINICS

Clinic on Cancer Detection

Dr. Esselstyn: At this session we will review and evaluate our experiences in the cancer-detection program at this Clinic. The history, status praesens, and the prognosis of this program will be considered with the objective of showing what can be accomplished practically in case finding in a community such as this.

Visiting Physician: Before going into the operation of your program, it would be helpful to some of us to know more about your community—population density, cancer incidence, income and educational levels, etc.

Dr. Esselstyn: The community that this Clinic serves lies thirty-five miles south of Albany and is classified as a semirural area. Hudson, a town of 11,629, is the county seat of Columbia County in which the 43,000 people give it a density of population of 64.5 persons per square mile. In the county 13 per cent of the residents are more than 65 years of age as compared to the State average of 8.5 per cent. The median family income is \$2399. The incidence rate of cancer, as might be expected with this older population, is elevated, being 244.1 per 100,000. The general educational level shows that 72 per cent of males and 66 per cent of females have completed the eighth grade.

Visitor: How long has your detection program been in operation? I know of several clinics for cancer detection that started with great enthusiasm and patronage only to deteriorate gradually and finally close for want of public interest.

Dr. Esselstyn: The Cancer Detection Clinic was opened on the evening of February 13, 1947. It has run to capacity from the very start and now is booked solidly for a period of eight months in advance. A great many of the appointments have already been filled a year ahead, as an in-

creasing number of patients have availed themselves of the opportunity of making these reservations at the time of their initial visit. This situation is far from ideal so far as it concerns the early detection of cancer, but it is significant as far as the educational value of the program is concerned. Dr. Craft will outline the extent of the examination made in the Clinic.

Dr. Craft: From the very start it was felt that the cause of cancer detection in our particular community could best be served by carrying on as complete and meticulous an examination as possible—that if an attempt was going to be made to pick up asymptomatic disease, all patients should be given the benefit of the entire examination regardless of history. The following work-up was made routine:

Complete history and physical examination
Gynecological examination
Proctoscopy
Laryngoscopy
Blood count
Sedimentation rate
Serology
Complete urinalysis
Papanicolaou smear of cervix
Dental examination including full-mouth roentgenograms
Roentgenograms of chest, abdomen, stomach, and colon

Nevertheless, our statistics have been compatible with those predicted rates of case finding of cancer in given segments of population that have been so well documented by studies of much larger groups.

Visitor: Is your clientele drawn from the local community entirely?

Dr. Esselstyn: The utilization of the Clinic, which was made known to the public mostly by word of mouth, in its

From Rip Van Winkle Clinic, Hudson, New York.

early days came largely from the cities of Albany and Troy. Gradually, however, more and more of the people of the community that the Clinic serves have become acquainted with the facility and are availing themselves of the service. Hence, today, although many people still come from a radius of forty to fifty miles, the majority of services are given to local people. A further breakdown reveals a preponderance of these people to be in their thirties and forties. Thus far we have not succeeded in reaching the older segment of the population in this county of elderly people. The deterrent has seemed to be not the cost, nor the inconvenience, nor the fear that something might be discovered, so much as the feeling that they have lived their lives, they have made their contributions to society, their children have grown up and are independent, they are alone, and whether they die of cancer or something else makes little difference. This should have an influence on the emphasis placed on this group in educational campaigns.

The 1952 annual report of the Bureau of Cancer Control of New York State shows that Columbia County in 1952 had the second lowest percentage of early cases to be reported in any of the counties in upstate New York. This indeed represents a failure on the part of cancer detection in general throughout the county and emphasizes the need for an increasing educational campaign.

Visitor: What charge is made for the examination?

Dr. Esselstyn: The work of the cancer-detection program has been made possible solely through the support of the Rip Van Winkle Foundation. The cost to the patient has been \$10 for men and \$12 for women, the difference in cost being the extra charge of \$2 for a cervical Papanicolaou smear. All patients have been accepted regardless of their ability to pay. It is revealing to learn that if the services of the doctors are donated as well as the use of the facilities, operation of cancer-detection programs such as ours, staffed by personnel who are paid \$5 a session, can be self-sustaining. This should lead to

a closer scrutiny of the many discouraging reports of the prohibitive cost of discovering a single case of cancer.

Dr. Grendon: Our group has felt from the very start that the value of the cancer-detection program did not lie in the 1 or 2 per cent of cases of actual cancer discovered but rather in the education of the public to a keen appreciation of the value of a check-up that is not only periodic but thorough, and the education of the doctor to the realization that nothing short of the most complete and meticulous examination can fulfill his obligation to discover early asymptomatic disease. It is difficult to evaluate the influence of our program in this respect accurately. However, two facts are of interest. Several months after our program was initiated, the trustees provided facilities for a cancer-detection center at the local hospital. Today, Hudson is the only city of 12,000 in the state of New York with two cancer-detection programs, both interestingly enough booked months in advance. And secondly, it is interesting to learn that the volume of roentgenological diagnosis now carried on in Columbia County has tripled in the past seven years. There are those who will argue that neither of these developments has in any way been related to the Rip Van Winkle cancer-detection program, but the developments are gratifying nevertheless.

It has become more and more apparent as the years have gone by that, if we are to pick up the early asymptomatic lesions, our methods must become increasingly refined, and our examinations more and more meticulous. It becomes more and more time consuming, and it requires more and more highly specialized ancillary specialists, such as cytologists, roentgenologists, and laboratory technicians. It has been made clear that the solo-physician practicing in an office with average facilities and equipment cannot undertake what today represents a good cancer-detection screening, not only because he cannot afford the time, but because he does not have available the necessary equipment or technical personnel. It is difficult to see how, practically, the day

can ever come when every doctor's office can be an adequate cancer-detection center.

Visitor: Your cancer-detection program, therefore, has developed into a program for general periodic physical examination and health education, has it not?

Dr. Esselstyn: The justification of the very complete examination that we are carrying out can only be on the basis of an educational program, and the full realization that this is a periodic health check-up, although carried on in the name of cancer, a dread disease. We are fully aware of the efforts that have been made along these lines in the past, and of their transient popularity and eventual disintegration. However, the continued popularity and the increasing demand for our services over a period of several years by the people of this rural community lead us to believe that the demand is here to stay. It is a reflection of the effect of the tremendous educational campaign of the American Cancer Society and a beginning realization by the public that the periodic examination adequate for the early detection of cancer is the same examination that is necessary for the maintenance of good health.

This growing demand on the part of the public for preventive services would seem to be of the greatest significance—in fact, it would seem to be the greatest single achievement of our cancer-detection program. It is a demand that will have to be met. Recently we read that several cancer-detection centers in New York City were being closed. In some instances it was said to be due to lack of patient interest. This is at variance with our experience. Quoting from the New York Times of April 6, 1954:

"Part of the reason for the decline in attendance at the clinics, committee spokesman said, may be traced to hostility by doctors and hospitals. Some physicians, it was reported, fear that the Clinics may be doing work that should be done in a private doctor's office. Hospitals, meanwhile, are said to have feared that the relatively few cancers detected

in people who go through the clinics do not justify operation of cancer clinics as a major activity."

This would seem to have serious implications. As long as the ability of a doctor to support his family is dependent on a fee-for-service basis, preventive medicine apparently will always be resisted for fear of encroachment. Through educational campaigns, such as those that have domesticated the name of cancer in this rural area, the public is aware, as never before, that today, using only the modalities that we now have, some 50,000 lives are in the balance each year, depending on early detection. Facilities necessary for this early detection must not only be maintained but greatly expanded. If solo doctors working on a fee-for-service basis are not interested, surely there are an increasing number of comprehensive prepaid plans associated with doctors on a fee per capita basis that are not only interested but, through health education, are doing everything within their power to encourage their subscribers to avail themselves of periodic health check-ups. If solo practitioners cannot afford the time or provide the adequate facilities, then the public must look to integrated teams of practitioners or group-practice units for the maintenance of their health. If these possibilities prove inadequate, then the public will demand the expansion of public health facilities. Over the years it has been clearly shown that the extent of the public health services has been limited only by the extent to which the public demanded them.

Dr. Stearns: The future of the Rip Van Winkle cancer-detection program points clearly to the value of the continuance of this service as a teaching demonstration. Our team has recently been augmented by a trained health educator, and it is hoped that through his efforts an increasing awareness of the need and value of periodic checkups will be brought to the people of our community. The union of an increasing educational campaign plus a thriving demonstration unit would seem to afford the greatest possibility of achieving our ultimate aim, namely, the earliest

possible detection of cancer in the people of the community we serve.

Dr. Esselstyn: In conclusion, the experience of the Rip Van Winkle cancer-detection program has shown:

1. That it has stimulated an increasing demand for periodic health check-ups in a relatively poor semirural area.

2. That it has so far failed to bring about significantly earlier detection of cancer in the community.

3. That the unusually complete examination being given has failed to result in a case finding of cancer higher than that ordinarily expected with routine screening.

4. That a second cancer-detection center has subsequently been opened in Hudson, a town of 12,000 people, and that both are running to capacity and booked months in advance.

5. That the volume of roentgenologi-

cal diagnosis has increased remarkably during the time that the cancer-detection program has been in operation.

6. That greater educational efforts must be made to reach the elder group.

7. That cancer-detection programs need not be prohibitively expensive.

8. That it is not realistic to think of having every doctor's office a cancer-detection center.

9. That the public has become aware of the fact that periodic examination adequate for the detection of cancer is the same examination adequate for the maintenance of good health.

10. That the growing public demand for this type of service will eventually have to be answered.

11. That the experience of seven years justifies the continuation of our present program with more and more emphasis on education.

Ehrlich Anniversary

On March 14th, 1854, in a village near Breslau in German Silesia, Paul Ehrlich was born to the innkeepers of the Krug zum Rautenkranz. He studied medicine and specialized in bacteriology—early developing his concept of a "therapia sterilisans magna" for control of infection without harm to the host.

His first success, in 1907, was the destruction of trypanosomes in the blood of animals by injection of his newly discovered trypan red. In 1908 he was awarded the Nobel prize in medicine. His most famous discovery, in 1910, was the salvarsan (606) therapy of syphilis, now superseded by the antibiotics.

Ehrlich is the father of chemotherapy. Upon his pioneer investigations are based the continuing developments in this field—sulfonamides, antibiotics, antimetabolites and the additional host of substances contributing to the successful surgical and chemotherapeutic management of cancer.



DOCTORS DILEMMAS

Q *What would be acceptable management of a male patient of 40 with an ulcerating lesion on the lesser curvature of the stomach?*

A With an ulcerating lesion of the stomach, providing the patient has free hydrochloric acid in the stomach and the lesion does not "appear" malignant on gastroscopy, and providing exfoliated-cell studies fail to reveal tumor cells, the patient should be placed on vigorous medical therapy. If, at the end of three weeks, the ulcer is not more than 50 per cent healed, the patient should have a subtotal gastrectomy. Should the ulcer fail to heal completely within five weeks, surgery is advised. Should the ulcer recur at a later date, surgery is again advised, since approximately 90 per cent of patients will be completely relieved of symptoms thereby if they have benign disease, and surgery offers the only chance to patients with malignant disease.

Q *Does chemotherapy for the lymphomas actually prolong life or merely reduce the complications of the disease?*

A There is much evidence that chemotherapy produced significant and sometimes prolonged palliation of distressing symptoms in patients with lymphomas. Unfortunately, the natural history of the disease is so variable that it is nearly impossible to assess the degree to which treatment prolongs the life of any given patient. The fact that patients with lym-

phomas treated by chemotherapy, who were previously bedridden or even paralytic, may return to gainful employment suggests that at least in certain instances life has certainly been prolonged by such treatment.

Q *Should a proctoscopic examination precede every hemorrhoidectomy?*

A Yes. This is essential, not only to delineate the extent of the hemorrhoids and suggest the choice of treatment but also to exclude other causes of rectal bleeding or rectal pain. If the patient has had rectal bleeding, has hemorrhoids, and shows no other abnormality of the rectum, barium enema must be considered to exclude the possibility of neoplasm or other disease beyond the rectosigmoid area.

Q *Has triethylenemelamine (TEM) proved useful in the treatment of multiple myeloma?*

A TEM is not effective in the management of multiple myeloma. Urethane is the most useful chemotherapeutic agent at present, given in doses of 3 to 5 gm. daily, beginning with the smaller dose and gradually increasing it over a period of from two to three months. Cortisone in the usual doses is often helpful. High voltage roentgen-ray therapy, of course, is standard for localized areas of bone pain and for fractures.



new developments in cancer

Penn-Dowdy Cancer Test . . .

Hope for a practical, if still somewhat imperfect, blood test for cancer was revived by a report by Dr. Andrew H. Dowdy and Dr. Harry S. Penn of the University of California at Los Angeles at the annual meeting of the American Association for Cancer Research, in Atlantic City.

At present the test misses, mainly, cancers that have not reached a highly invasive or metastatic stage; about 10 per cent of the reports are false negatives. About 3 per cent of presumably normal people gave false positives; and higher percentages were given by patients with such conditions as arthritis, liver cirrhosis, and pregnancy.

The UCLA team said that their test, in one form or another, had been tried on 10,800 cancer patients, normal people, and people with noncancerous diseases. While the procedure requires some margin for error, the investigators asserted that it was of value in detecting cancers, distinguishing between benign and malignant tumors, and indicating response of cancer to treatment. The more advanced the disease stage, the higher the accuracy. It is now being tested in other laboratories.

The test involves adding an inexpensive crystalline antigen, ethylcholadienate (a

desoxycholic acid product) to a blood sample. If the mixture remains murky, the test is negative. If it clears and particles form, it is positive. The antigen has remained stable for more than one year.

Associated with Dr. Penn and Dr. Dowdy were Dr. George Hall and Dr. Albert Bellamy.

Hormones and Lymphomas . . .

Some strains of mice develop lymphomas and leukemias following total-body radiation. Gardner and Rygaard (Yale) have shown a strong sex-hormone influence over roentgen-ray-induced lymphomas in the BC strain. They noted that, following irradiation, three times as many females as males developed lymphomas. Then the mice were given male hormone after radiation; the incidence of lymphomas dropped. Estradiol benzoate brought a very sharp increase, particularly in males.

Light and Tumors . . .

Could light be an etiological factor in some tumors? Schlumberger (Ohio State) is considering this in his investigation of fairly common spontaneous chromophobe pituitary tumors of the parakeet. Circumstantial evidence of this possibility lies in the fact that most tumorous birds come

from Texas, where the high incidence of skin cancers has been correlated with an abundance of year-round light. One consideration is that parakeet breeders, like poultry producers, have stepped up production of the birds by artificially prolonging "daylight hours" for egg laying. Some believe that light stimulates the hypophysis indirectly through visual perception or excitation of deep nerve centers or directly after penetrating overlying tissues. The stimulations lead to production of gonadotropins and increased sexual activity. Is this the basis for the parakeet pituitary tumors, which bring protruding eyes, obesity, and death at two and one-half years (the normal life span is nine years)? Best guess: It could be.

Roentgen Rays and The Killer . . .

Some paramecia are called killers. They contain cytoplasmic particles, kappa, that apparently produce a deadly poison, paramecin. The poison kills paramecia of a sensitive strain. Nanney of the Universities of Indiana and Michigan has explored the effect of roentgen rays on the variety of kappa-producing killers. He found that 1860 r inactivated the majority of the normal and mutant kappa. However, it took about 26,000 r to inactivate the same majority of the poison itself, paramecin, in a cell-free suspension. Another investigator earlier had found that still another stock of kappa-carrying paramecia was almost twice as resistant to roentgen rays as were those of Nanney's strain. Whether this pattern of behavior will throw light on the amazing traits of animal and human viruses remains to be seen. And the findings may help explain the radiation sensitivity or resistance of human cells.

Cortisone Chemotherapy . . .

Several scattered investigators recently have reported temporary but sometimes striking remissions in human breast-cancer patients treated with cortisone. Segaloff and others (Tulane) treated eleven advanced cases with cortisone acetate and seven others with ACTH. Most

patients showed subjective, but not objective, improvement. Although both agents caused a rise in 17-ketosteroid and corticoid excretion, ACTH, in this respect, proved more potent. A sharp difference was noted in the fact that cortisone increased gonadotropic and prolactin excretion, while ACTH decreased them.

Cortisone and Metastases . . .

Among the chemotherapeutic contradictions of cortisone are: notable retardation of lymphomas; and, on the other hand, the acceleration of development of several solid tumors—including those transplanted from one species to another. Pomeroy (Lankenau) has found that cortisone acetate promoted widespread metastases of a transplanted mouse adenocarcinoma. This did not occur with a transplanted mouse sarcoma, however. The investigator feels that the cortisone somehow prepared the tissue "soil" for the reception of metastatic cells. Moreover—and this may be even more important—the cortisone by its activity on the reticulo-endothelial system appeared to have decreased the animal's immunological response to tumor antigens.

Swordtail Tumors . . .

Laboratory-bred swordtail fish normally have a high incidence of thyroid tumors, which can be prevented and controlled with iodine, thyroxine, or mammalian whole thyroid tablets. Berg and Gorbman (Columbia) tested the tumors' ability to synthesize thyroid hormone and its precursors. They gave the animals radioactive iodine and sacrificed them at intervals up to 168 hours. They found that the tumorous glands took up as much as 60 per cent of the injected iodine—and took it up rapidly. But the turnover was slow. Half the injected iodine was still in the gland after 168 hours. The tumor itself transformed the iodine into thyroxine, via monoiodotyrosine and diiodotyrosine. But the tumorous thyroid took three times as long as normal thyroid to convert 10 per cent of the isotope to thyroid hormone.

ments of scientists working in concert toward specific objectives under the forced draught of national emergencies. If we do not misapprehend the pattern of disease, we are in a national emergency. It lies within the power of this Committee to undertake the mobilization of the scientific resources of our country that will, God willing, provide us with an effective defense against a dire threat. I hope your scientific consciences will permit -- may direct you to do so.

At the end of the three-day conference the following statement was adopted:

A real and progressive increase in lung cancer is evident especially in urban male residents of the United States and some other countries. Cancer research in particular accepts the challenge of this alarming recent increase of cancer of the lung. Numerous considerations suggest that inhalation of environmental carcinogens may be responsible for this increase. Statistical information at hand on human populations speaks for an association between heavy cigarette smoking and cancer of the lung. Additional data indicate that atmospheric contaminants from certain industrial operations and products of combustion of commercial fuels may be among other associated factors. Some laboratory evidence on animals shows that agents capable of evoking cancer in animals exist in cigarette smoke condensates and in atmospheric contaminants in urban centers. The conference desires to record its Resolutions as follows:

1. That large scale epidemiological studies of the relation of smoking and other inhalable agents to lung cancer in man are of great importance, and that additional studies now in progress should be vigorously pursued and expanded.

2. That the need to search for carcinogenic agents in tobacco or tobacco products and to study the possible causative roles of other environmental factors in atmospheres to which the general population is exposed is clear and that such investigative efforts call for a substantial increase in present research resources to carry on such studies as quickly as may be found possible.

3. That a measure of co-ordination in lung-cancer research is desirable and therefore that such steps as may be administratively desirable be taken to bring together organizations concerned with the public health in a co-

operative endeavor to expedite the exchange of information among scientists and to foster and encourage research in this field.

Quack, Quack! Qu-u-u . . . The Food & Drug Administration has successfully concluded injunction suits against "two of the most widespread sources of quackery," both of which claimed to cure a host of diseases including cancer.

1. The Electronic Medical Foundation of San Francisco, formerly the College of Electronic Medicine set up by the late Dr. Albert Abrams to promote his electromedical theories of diagnosis and treatment, consented to the entry of the decree and accordingly will discontinue introduction into interstate commerce of their various push-button, electronic, Rube Goldbergs for diagnosis and treatment. Investigation showed that the so-called blood diagnostic service could not distinguish between blood of animals or birds and that of man, or between that of the living and that of the dead. "Research" on the utility of the devices will be continued in Germany and Mexico, according to the president of the Foundation.

2. Similar action against the Wilhelm Reich Foundation of Rangely, Maine, met with more resistance. Dr. Reich, formerly associated with Freud in Vienna, refused to appear in court as defendant, contending that the Food and Drug Administration has no jurisdiction in the "realm of Basic Natural Law." He claimed a "natural science" basis for his "Orgone energy accumulator," a telephone-booth-like box of wood, glass, steel, and wool, in which the hopeful patient sat to absorb the atmospheric "orgone energy" allegedly stored in the "Accumulator." The defendants, Wilhelm and Ilse (wife) Reich and their alleged nonprofit Foundation, must recall for destruction or for salvage of materials all the booth devices on out-of-state rental together with all misleading labeling.

Commissioner Crawford of the Food and Drug Administration commenting on this case said: "Irreparable harm may result to persons (especially cancer patients) who abandon or postpone rational medical treatment while pinning their faith on worthless devices such as these."

COMING MEDICAL MEETINGS

| Date 1954 | Association | City | Place |
|----------------------------|---|---------------------|---------------------------------|
| July 22-23 | International Congress of Surgeons Meetings (Regional) | Salt Lake City | Hotel Utah |
| July 23-29 | Sixth International Cancer Conference | São Paulo, Brazil | |
| July 26-29 | International Congress of Obstetrics and Gynecology | Geneva, Switzerland | |
| Aug. 9-13 | National Medical Association | Washington, D. C. | |
| Sept. 1-8 | International Cytological Congress | Leiden, Netherlands | |
| Sept. 6-10 | Third International Congress of Clinical Pathology | St. Louis | Washington U. School of Med. |
| Sept. 6-10 | International Congress of Geographic Pathology | Washington, D. C. | |
| Sept. 7-10 | International College of Surgeons | Chicago | Palmer House |
| Sept. 12-18 | World Congress of Cardiology | Washington, D. C. | |
| Sept. 26- Oct. 2 | World Medical Association | Rome, Italy | |
| Oct. 7-18 | Pan Pacific Surgical Congress | Honolulu, Hawaii | |
| Oct. 11-15 | American Public Health Association | Buffalo | Memorial Auditorium |
| Oct. 24-28 | National Rehabilitation Association | Baltimore | Lord Baltimore Hotel |
| Nov. 3-6 | American Society Tropical Medicine and Hygiene | Memphis | |
| Nov. 8-11 | Southern Medical Association | St. Louis | |
| Nov. 12-13 | Inter-Society Cytology Council | Boston | Hotel Statler |
| Nov. 30- Dec. 3 | American Medical Association Clinical Session | Miami | |
| Dec. 26-31 | AAAS Meeting | Berkeley | Univ. of Calif. |

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